Diversity and ecology of understory plant in sempu island, East java, indonesia

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Abstrak

As indicator for environmental disturbances, the understory is an important structural and functional component of forests ecosystems. Hence, this study was conducted to investigate the diversity and composition of understory plants in the lowland forests adjacent to the trekking paths along Semut Bay (dock entrance) to Segara Anakan Lagoon and some coastal areas in Sempu Island, and to detemine their association with the underlying environmental factors as disturbance indicators by the presence of understory invasive alien species (IAS). Sixty six plots of 2 x 2 m2 were established to analyze the understory vegetation, the site profiles and the environmental variables. A total of 135 understory plant species belonging to 108 genera and 60 families were recorded within the 66 plots of the study areas. Poaceae was the dominant family, followed by Compositae, Phyllanthaceae, Sterculiaceae, Rubiaceae, Putranjivaceae and Cyperaceae. The understory communities in the lowland forest adjacent to Semut Path were dominated by tree seedlings and had a relatively fewer composition of shrubs. Coastal areas, which have more open canopies, were dominated by grasses and shrubs. Some dominant native understory species include Ckistanthus ohlongifolius, Pterocymbium javanicum, lschaemum muticum, Guettarda spedosa, etc. Indicating disturbance, 12 understory IAS were found in the study areas. Four of these are among the worldâ€™s worst invaders (Chromolaena odorata, Imperata tylindrica, Lantana camara and Spathodea campanulata), and three are noxious weeds (Cyperus rotundus, Eleusine indica and Imperata cylindricd). The light intensity and air temperature were strongly positively associated with disturbed sites, while relative humidty, soil pH, and elevation were associated with less disturbed sites. These study results provide the scientific basis for management and recommendations on the current diversity status of the understory plant species at Sempu Island, hoping that these would justify further conservation of indigenous species and their protection from these disturbances.